REMARKS

After entry of this amendment, claims 1, 2, 4, 5, 7, 9–11, 13–19, 22–24, 76, 78, 80, 82, and 83 will be pending.

Claims 1, 76, 78, 80, and 83 are amended to clarify the listing of thermoplastic materials; claims 10, 11, and 13, as well as claim 1, are amended to clarify the scope of the claims. Support for the amendments may be found in, for example, the originally filed claims. No new matter has been added.

Rejection of claims under 35 U.S.C. § 112

Claims 1, 2–5, 7, 9–11, 13–19, 22–24, 76, 78, 80, and 83 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that applicant regards as the invention.

Applicants submit that this rejection is moot in view of the amendments to claims 1, 10, 11, 13, 76, 78, 80, and 83.

Rejection of claims under 35 U.S.C. § 102

Independent claim 82 is rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,780,368 to Liu et al. ("Liu"). Liu appears to describe a freeform fabrication method for fabricating a 3-D multi-material or multi-color object from successive layers of a primary body-building powder.

The Examiner relies on Liu to teach all of the elements of independent claim 82. Because the Office action does not specify which element of claim 82 is anticipated by which teaching of Liu, Applicants attempted to identify the particular support in Liu for the rejection.

Liu does not appear to teach applying at least one of an ultraviolet light, a visible light, or an electron beam on the printed layer to induce a non-aqueous fluid to solidify, as required by claim 82. Also, Liu does not seem to teach or suggest applying a non-aqueous fluid to activate thermoplastic particles and applying an energy source to induce the non-aqueous fluid to solidify, as also recited in claim 82. Rather, Liu appears to disclose applying an energy source to either cure or harden a resin composition or to fuse a lower-melting material to become a liquid that is subsequently cooled to become a solid. *See* column 7, lines 8–17.

Applicants submit that claim 82 is patentable over the cited art for at least this reason. If the Examiner is inclined to maintain this rejection, clarification as to the correspondence between Applicants' claimed elements and the specific disclosure in Liu is respectfully requested.

Claims 1, 2–5, 7, 9–11, 13–19, 22–24, 76, 78, 80, and 83 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,649,077 to Lauchenauer ("Lauchenauer"). Lauchenauer appears to disclose a heat activatable adhesive formed from at least two components, each in the form of discrete flowable particles. *See* abstract. An auxiliary agent may be incorporated, the agent being capable of strongly swelling or even dissolving at least one of the interacting components, this auxiliary agent being released or activated only when proper heat and/or pressure is applied to the conglomeratic material. *See* column 5, lines 20–25. The Examiner relies on Lauchenauer to teach all of the limitations of independent claims 1, 76, 78, 80, and 83, although, again, the Office action does not specifically explain where each claim element is found in Lauchenauer.

Nevertheless, it is clear that Lauchenauer does not teach or suggest the application of a fluid to a film of a loose and free-flowing particulate mixture, as recited in independent method claims 76, 78, and 80. Similarly, Lauchenauer does not teach an article that is a product of a loose and free-flowing particulate mixture and a fluid, as recited in independent article claim 83. Rather, Lauchenauer, uses heat and/or pressure, not a liquid, to activate a component in a conglomeratic sheet material. *See* column 3, line 13–40. Moreover, Lauchenauer teaches away from the use of liquid-bonding systems. Lauchenauer appears to mention liquids only with respect to the prior art, with liquid adhesives being used to join two layers of a composite sheet material. *See* column 1, lines 13–16. Lauchenauer lists a number of problems associated with such liquid-bonding systems, such as the challenge in removing liquid media by evaporation while holding the objects to be joined tightly together. *See* column 1, lines 17–20.

Amended independent claim 1 recites a loose and free-flowing particulate mixture including a thermoplastic material and an adhesive particulate material, the latter being an alkaline-reducible resin, a water-soluble resin, or an inorganic adhesive. Lauchenauer discloses a number of thermoplastic polymers, including polypropelene. *See* column 4, lines 45–51. Examples of components of the bonding layer include at least two thermoplastics, one of which may a polyester.

See column 4, lines 34–51 and claim 1. Lauchenauer, however, does not appear to disclose an adhesive particulate material including an inorganic adhesive or an alkaline-soluble resin, as recited in amended independent claim 1. Lauchenauer also does not appear to describe any of the water-soluble resins recited in amended independent claim 1. Finally, Lauchenauer also does not disclose an adhesive particulate material adapted to bond the thermoplastic particulate material when a fluid activates the adhesive particulate material, as also required by claim 1, relying instead on heat and/or pressure.

Applicants submit that claims 1, 76, 78, 80, and 83, as well as claims dependent therefrom, are patentable for at least these reasons. If the Examiner is inclined to maintain these rejections, clarification as to the correspondence between Applicants' claimed elements and the specific disclosure in Lauchenauer is respectfully requested.

CONCLUSION

In light of the foregoing, Applicants respectfully submit that all claims are now in condition for allowance.

Applicants believe that no additional fees are necessitated by the present paper. However, in the event that any additional fees are due, the Commissioner is hereby authorized to charge any such fees to Deposit Account No. 07-1700.

If the Examiner believes that a telephone conversation with Applicants' attorney would expedite allowance of this application, the Examiner is cordially invited to call the undersigned attorney at (617) 570-1806.

Respectfully submitted,

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